

L 10/52-67 EWT(m)/EWP(t)/ETI IJP(c) JD/DJ
 ACC NR: AP6022507 SOURCE CODE: UR/0133/66/000/004/0327/0328

AUTHORS: Oyks, G. N.; Matevosyan, P. A.; Ansheles, I. I.; Fatkullin, O. Kh.;
 Selivanov, V. M.; Petrov, B. S.; Sivkov, S. S.; Fedorov, V. I.

ORG: none

TITLE: Experimental smelting of ball-bearing steel by using a refusing method
 employing a new technology

SOURCE: Stal', no. 4, 1966, 327-328

TOPIC TAGS: alloy steel, ball bearing steel, metallurgic research / ShKh15 alloy
 steel

ABSTRACT: A new technology for smelting ball-bearing steel employing a refusing
 method was developed. This method is based on the results of an earlier investigation
 by G. N. Oyks, P. A. Matevosyan, I. I. Ansheles, i dr. (Novaya tekhnologiya vyplavki
 sharikopodshipnikovoy stali, Metallurgizdat, 1962). The salient points of the new
 technology are: 1) the furnace charge consists of 100% ball-bearing steel scrap; 2) to
 insure desulfonation, the slag is reduced with pulverized coke only; 3) the oxygen
 concentration is maintained by additions of red hot bauxite. After the above three
 steps, the steel is evacuated and poured in the usual way. A comparison of the new
 method with older ones is presented (see Fig. 1). It is concluded that the new method
 yields ball-bearing steel of higher quality.

UDC: 669.187.2

Cord 1/2

L 10452-67

ACC NR: AP6022507

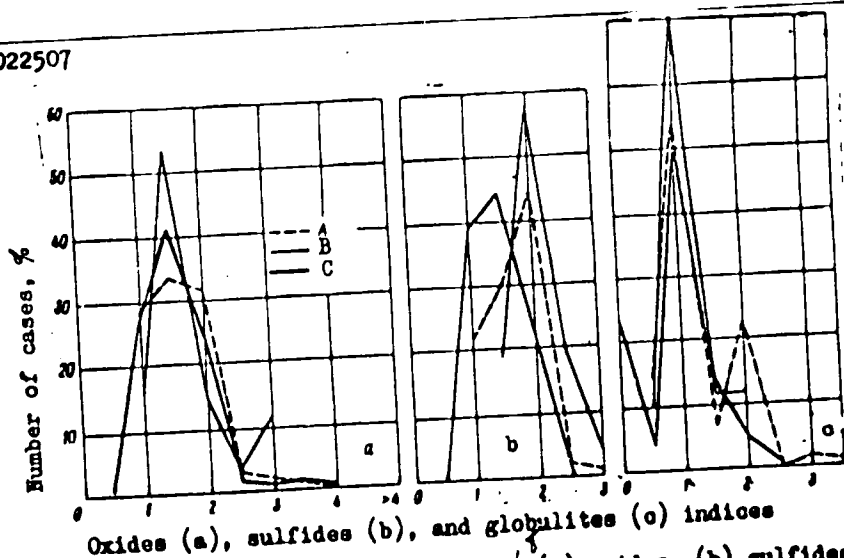


Fig. 1. Comparison of impurities in steel ShKh15/ (a) oxides, (b) sulfides, and (c) globulites obtained by evacuation under usual slags (A) and slags of increased oxidative power (B - smelting with oxidation agent, C - smelting according to the new refusing method).

Orig. art. has: 2 tables and 2 graphs.

Card 2/2 SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 001

1. The first part of the document is a list of the names of the individuals who were involved in the project. The names are listed in alphabetical order. The names are: [illegible]

PETROV, B.V.

Conference of inventors and efficiency promoters from nonferrous
metal plants of Moscow and Moscow Province. TSvet.net. 28
no.1:76-78 Ja-P '55. (MIRA 10:10)
(Nonferrous metal industries)

CHERNING, E.K.; KOLIKOVA, T.V.; PETROV, B.V.; ZULFIKAROVA, Z.K.

Study of the suitability of amphiboles for the determination
of the absolute age of rocks by the potassium argon method.
(MIRA 18:6)
Geokhimiya i. 1965.

Orientation of Massive Polymeric Materials

37/1000000

ation of the orientation degree and by special addition of... for instance, organic and inorganic. Two principal pro-
tion method for oriented massive polymers were developed: the
method of radial stretching and compression. Several ma-
chines were developed for the production of special materials,
e.g. for the glazing of airplane cabins (Figure 1). The production
process according to both methods is described. Table 1 shows
the mechanical properties of oriented polymers. Table 2 shows
the data obtained from the two methods. It is seen
that these properties are the same degree of orientation, stretch-
ing or compression are practically equal. In addition, the
the two methods. This degree depends on the properties of the
oriented material (Table 1). Figure 2 shows the dependence of
the deformation modulus, strength limit, elongation, etc. on the
the degree of orientation. It appears from the
experimental data that an increase in the degree of orientation
up to 100% does practically not change the mechanical prop-
erties (except for the specific resistance of the oriented
polymer). Figure 3 compares the dependence of the strength
of an oriented and of a non-oriented polymer on the test tem-

Part 1/1

Research of Massive Polymer Materials

Soviet Union

perature. It appears that several of these indices are much higher in the former polymer than in the latter. The authors finally discuss the results obtained. There are 4 figures, 1 table, and 4 references, 3 of which are Soviet.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut aviatselebrnykh materialov (All-Union Scientific Research Institute of Aircraft Material)

SUBMITTED: June 25, 1962

Page 1/1

PETROV, B.V.; FAYNEINGER, S.S.

Results of the competitions in enterprises of the nonferrous
metal industry. Izobr.v SSSR 2 no. 2-42 J1 '57. MIRA 10 71
(Nonferrous metal industries--Competitions)

"APPROVED FOR RELEASE: 07/19/2001

CIA-RDP86-00513R001240420009-9

APPROVED FOR RELEASE: 07/19/2001

CIA-RDP86-00513R001240420009-9"

1951, B. Ya.

USSR/Physics - Phosphorescence

Feb 51

"Duration of Phosphorescence of Benzene and Its Derivatives," P. P. Dikun, A. A. Petrov, B. Ya. Sveshnikov

"Zhur Eksper i Teoret Fiz" Vol XXI, No 2, pp 150-163

Presents data obtained by authors and from lit on duration of metastable state of 60 benzene deriv and of 6 aliphatic ketones in soln at temp of liquid air. Shows, besides small exceptions, extinguishment const. is same in ultraviolet, blue and green bands and extinguishment law is nearly exponential.

LC

180198

PETROV, B.Ye.

Spectrum analysis as applied to a nonlinear oscillatory system.
Radiotekhnika 19 no.7:3-13 J1 '64. (MIRA 17:12)

1. Deystvitel'nyy chlen Nauchno-tekhnicheskogo obshchestva
radiotekhniki i elektrosvyazi im. A.S. Popova.

PROV, B.Ya.

Equivalent circuits of a triode and a transistor. Radiotekhnika
18 no.5:45-53 My 1963. (MIRA 16:2,

1. Deystvitel'nyy chlen Nauchno-tekhnicheskogo obshchestva
radiotekhniki i elektroniki imeni Popova.
(Transistors) (Electronics) (Equivalent circuits)

ACCESSION NR: AP4014528

8/0108/64/019/002/0003/0012

AUTHOR: Petrov, B. Ye. (Member)

TITLE: Polynomial approximation of characteristics of nonlinear elements

SOURCE: Radiotekhnika, v. 19, no. 2, 1964, 3-12

TOPIC TAGS: polynomial approximation, harmonic analysis, variable coefficient polynomial approximation, electronic oscillator, low degree polynomial approximation, nonlinear electronic device

ABSTRACT: For purposes of harmonic analysis, a new method of approximating the characteristics of nonlinear devices by means of a variable-coefficient polynomial is suggested; in general, the coefficients depend on the amplitudes and phases of the sinusoidal components that are applied to the nonlinear device. The method is based on the idea of interpolation between a finite number of values of the argument and the function. In earlier works, the selection of reference values of the argument and function was not correlated with the range of variation of the argument which resulted in higher degrees of the approximating polynomial. The introduction of variable coefficients permits retaining a high accuracy of the approximation, with a low degree of the approximating polynomial, in the range

Card 1/2

ACCESSION NR: AP4014528

of the amplitudes in question. An essential feature of the method is that the nonlinear-device characteristic is presented as consisting of an odd and an even part. It is suggested that an equal number of inflection points of the original function and the approximating polynomial (in their odd and even parts) be taken as a criterion of sufficient approximation. Hence, for example, a characteristic of an electron tube functioning without saturation should be approximated by a polynomial with a degree of 3 or higher. If saturation is involved, the polynomial should be a minimum of the 5th degree. An examination of an asynchronous signal applied to a self-excited oscillator is used for evaluating the error associated with the above variable-coefficient method. "The author extends his thanks to A. M. Zayezdnyy for his valuable comments which helped to improve the manuscript." Orig. art. has: 1 figure and 27 formulas.

ASSOCIATION: Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi (Scientific and Technical Society of Radio Engineering and Electrocommunication)

SUBMITTED: 01Aug62

DATE ACQ: 02Mar64

ENCL: 00

SUB CODE: GE

NO REF SOV: 010

OTHER: 002

Card 2/2

PLEASE I BOOK REPLICATION

[illegible][illegible]

1. The collection of articles is not complete and accurate. The collection is not complete and accurate.

[illegible]

Lester K. Kirk, N.A., **Books of Memory**, B&B
Publishing Co.

一、關於我國經濟建設之方針

THE UNIVERSITY OF CHICAGO

五

192

There are many reasons for the existence of a market for foreign exchange. The most important of these are:

1871

一、（一） 凡在本市行政区域内，凡有房屋所有权人、使用权人、承租人、抵押权人、继承人、受遗赠人、债权人、债务人、其他利害关系人等，均应当遵守本办法。

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一、二、三、四、五、六、七、八、九、十、十一、十二、十三、十四、十五、十六、十七、十八、十九、二十、二十一、二十二、二十三、二十四、二十五、二十六、二十七、二十八、二十九、三十、三十一、三十二、三十三、三十四、三十五、三十六、三十七、三十八、三十九、四十、四十一、四十二、四十三、四十四、四十五、四十六、四十七、四十八、四十九、五十、五十一、五十二、五十三、五十四、五十五、五十六、五十七、五十八、五十九、六十、六十一、六十二、六十三、六十四、六十五、六十六、六十七、六十八、六十九、七十、七十一、七十二、七十三、七十四、七十五、七十六、七十七、七十八、七十九、八十、八十一、八十二、八十三、八十四、八十五、八十六、八十七、八十八、八十九、九十、九十一、九十二、九十三、九十四、九十五、九十六、九十七、九十八、九十九、一百。

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 八、凡有...
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THE UNIVERSITY OF CHICAGO

1. The first step is to identify the problem or question that needs to be addressed. This involves understanding the context and the specific requirements of the task.

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1. The first step is to identify the problem or question that needs to be addressed. This involves understanding the context and the specific requirements of the task.

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L 12852-65 BSD/AEDC(b)/SSD/AFETR/AFWL/ASD(a)-5/RAEM(a)/RAEM(c)/RAEM(1)/
ESD(c)/ESD(ga)/ESD(t)

ACCESSION NR: AP5000442

S/0108/64/019/007/0003/0012- ?

AUTHOR: Petrov, B. Ye. (Active member) B

TITLE: Special analysis applied to a nonlinear oscillator

SOURCE: Radiotekhnika, v. 19, no. 7, 1964, 3-12

TOPIC TAGS: spectrum analysis, oscillator, spectroscopy, electronics,
electronic oscillator, electronic component

Abstract: Spectral analysis of an output function is carried out for the case when the argument acting on the nonlinear element is represented as a finite number of sinusoidal components. Criteria are developed for cases of nonsynchronous, partially synchronous, and synchronous frequency ratios of the active components. These criteria are used to select the degree of the approximating polynomial in accordance with the properties of the phenomenon being studied. The article is an extension of an earlier work by the author (Radiotekhnika, Vol 19, No 2, 1964). Orig. art. has 24 equations.

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L 12852-65
ACCESSION NR: AP5000442

ASSOCIATION: Nauchno tekhnicheskoye obshchestvo radiotekhniki i elektro-
svyazi im. A. S. Popova (Scientific Technical Society of Radio Engineering
and Communication)

SUBMITTED: 01Aug62

ENCL: 00

SUB CODE: EC

NO REF SOV: 008

OTHER: 004

JPRS

Card 2/2

S/194/61/000 000 149 100
0201/0303

(9.25 to 14.10 1139, 1159, 1161)

AUTHOR: Petrov, B Ye

TITLE: Equivalent large sinusoidal voltages in a junction transistor

PERIODICAL: Referativnyy zhurnal Avtomatika i radioelektronika
no. 5, 1961, 18 abstract 5 D135 (7 80) Referativnyy
nik. pribory i ikh primeneniye, no. 5, 1961, 178
radio, 1960, 158-178)

TEXT: Expressions are obtained for evaluating the average values of components of an equivalent circuit in Π configuration for a junction transistor in common emitter connection and at large applied sinusoidal voltages. The slope S of the transfer characteristic is obtained together with the mutual and output conductance. These parameters make it possible to design power amplifiers with feedback and the steady states of generators in the frequency range up to $1 - 2\omega_s$, where ω_s - frequency at which S at large signal level

Card 1/2

Equivalent large sinusoidal

S/194/61/001 005 44 76
0201/0303

decreases $\sqrt{2}$ times with respect to the value of S at LF. It is shown that the introduction, by analogy with the valve circuit of the idea of average slope of the junction transistor model, also at frequencies where it is necessary to take into account the phase shift between the input voltage and the collector current. 14 references. / Abstractor's note: Complete translation.

Card 2/2

L 21667-66

ACC NR: AP6004352

SOURCE CODE: UR/0108/65/020/010/0052/0060

AUTHOR: Petrov, B. Ye. (Active member)

ORG: Scientific and Technical Society of Radio Engineering and Electrocommunication
(Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi)

TITLE: Frequency stability of transistorized and electron-tube oscillators

SOURCE: Radiotekhnika, v. 20, no. 10, 52-60 1965

TOPIC TAGS: electronic oscillator, frequency stability

ABSTRACT: Operating frequency stabilities of transistorized and electron-tube oscillators are theoretically compared; these assumptions are made: (a) oscillatory-circuit attenuations δ are equal; (b) low and equal working frequencies; (c) frequency-instability components of δ^2 order of magnitude are neglected; (d) both the transistor and electron tube are considered as nonlinear elements with frequency-dependent parameters. On the basis of h-f equivalent circuits of the transistor and electron tube, formulas for frequency instability due to oscillatory-circuit detuning, collector current and voltage variations, and temperature variations

Card 1/2

UDC: 621.373

L 21667-66

ACC NR: AP6004352

of tube capacitances are derived. The temperature coefficient of transistors usually does not exceed that of oscillatory systems; as the transistors dissipate only small amounts of heat, it is not difficult to thermostat them. A numerical example with conventional Soviet-made transistors and tubes proves that the transistorized oscillator is not inferior to the tube type as far as its frequency stability is concerned. An experimental verification at 3 Mc is mentioned. Orig. art. has: 5 figures, 22 formulas, and 2 tables.

SUB CODE: 09 / SUBM DATE: 18Jun63 / ORIG REF: 017 / OTH REF: 001

Card 2/2

PETROV, Boris Petrovich; STEPANOV, Aleksandr Dmitriyevich; MINOV, D.K., prof., retsenzent; DAVYDOV, M.A., dots., retsenzent; KOSAREV, G.V., dots., retsenzent; TRAKHTMAN, L.M., dots., retsenzent; SIDOROV, N.I., red.; LARIONOV, G.Ye., tekhn. red.

[Electrical equipment and automation of electric rolling stock] Elektricheskoe oborudovanie i avtomatizatsiia elektricheskogo podvizhnogo sostava. Izd.2., perer. i dop. Moskva, Gosenergoizdat, 1963. 303 p. (MIRA 17:3)

PETROV, D. (Kuybyshev)

Improve technical control section. Prom. keep. no. 9:25 S '56.
(Efficiency, Industrial) (MIRA 9:10)

1000, 1000

Operating in the same manner as the other two, the third
control device for the other two is the same. The other two are
also the same.

NEDEV, B.; PETROV, D.

Case of diverticulum of urinary bladder in extra-saccular hernia. Khirurgia.
Sofia 10 no.3:262 1957.

(BLADDER, diverticula

with sliding hernia (Bul))

(HERNIA, INGUINAL, compl.

bladder diverticulum with sliding hernia (Bul))

PETROV, D.

"Some problems related to the growth, structure, and properties of semi-conductive mono-crystals." Tr. from Russian, p. 599

MAGYAR FIZIKAI FOLYÓIRAT. (Magyar Tudományos Akadémia) Budapest, Hungary
Vol. 6, No. 6, 1958.

Monthly List of East European Accessions (EEAI) LC, Vol. 8, No. 6, June 1959.
Uncl.

"APPROVED FOR RELEASE: 07/19/2001

CIA-RDP86-00513R001240420009-9

APPROVED FOR RELEASE: 07/19/2001

CIA-RDP86-00513R001240420009-9"

PETROV, D.

Regional and urban competition in radio telegraphy at Varna.
Radio i televizija 12 no.8:228 '61.

[illegible][illegible]

Journal of Management Education 30(6)p. 789-804
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1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

PETROV, D.

PETROV, D. Some interesting short-wave antennas with directional operation.
p. 16. Vol. 5, no. 10, 1956 ELEKTROENERGIJA. Sofia, Bulgaria

Source: East European Reference List (EERL) Vol. 1, No. 1-4, 1956

Abstract

47-60000-100

12001, D.

1. - Call signals of Amateur Radio Station abroad, Radio Engineering, #100: May 55

PERIOD, D.

High Full Driver State, with engineering, #1: 1/10/71

Figure 1, 2.

Conditions for the Amateur Short Wave (HF) ranges, with engineering, "this is in

PETROV, O.

establishment of communication with the Soviet Union, Radio Engineering, #1, June 1955

PETROV, D.

The OKLAF (Radio Amateur) among the Radio Amateurs of Sofia.
"RADIO" Ministry of Communications, #12:16:Dec. 55

PETROV, D.

QTC. "RADIO" Ministry of Communications, #12:17:Dec. 55

IVANITSKIY, V.(Kiyev); PETROV, D.(Kiyev)

Let's improve the efficiency of commercial enterprises. Sov. torg. 35
no.9:22-24 S '62. (MIRA 16:2)

(Ukraine—Retail trade)

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CIA-RDP86-00513R001240420009-9"

IVANOV, I., kand. tekhn. nauk; TIKHONOV, K., kand. tekhn. nauk; PETROV, D. inzh.;
SHMYREV, A.

Let us urge the technical reconstruction of railroad transportation. MTO no. 4:26-29 Ap '59. (MIRA 12:6)

1. Predsedatel' sektsii elektrifikatsii i energetiki TSentral'nogo pravleniya nauchno-tekhnicheskogo obshchestva zheleznodorozhnogo transporta (for Ivanov). 2. Chleny sektsii ekspluatatsii TSentral'nogo pravleniya nauchno tekhnicheskogo obshchestva zheleznodorozhnogo transporta (for Tikhonov, Petrov). 3. Zamestitel' predsedatelya sektsii signalizatsii i svyazi TSentral'nogo pravleniya nauchno-tekhnicheskogo obshchestva zheleznodorozhnogo transporta (for Shmyrev).
(Railroad research)

PEIROV, D.

Short-wave radio station Q T C. p. 20. RADIO. (Ministerstvo na poshtite, telegrafite, telefonite i radioto i Tsentralniiia suvet na dobrovolnata organizatsiia za sudeistvie na otbranata) Sofiya. Vol. 4, no. 5, 1955

SOURCE: East European Accessions List, (EEAL), Library of Congress
Vol.4 , No. 12, December 1955

PETROV, D.

Department of short-wave telegraphy. p. 16. RADIO. (Ministerstvo
na poshtite, telegrafite, telefonite i radioto i Tsentralniia sovet na
dobrovolnata organizatsiia za sudeistvie na otbranata] Sofiya. Vol. 4,
no. 5, 1955

SOURCE: East European Accessions List, (EEAL), Library of Congress
Vol. 4, No. 12, December 1955

"APPROVED FOR RELEASE: 07/19/2001

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Vol. 1, No. 4, 1964.

1964.

1964.

Office, California

On: 12/1/1964: Accession No. 100-100000-100000

PETROV, D., redaktor; BODROV, A., tekhnicheskii redaktor

[Tomorrow in to the field; stories of Communist Youth League
committee secretaries of schools for the mechanisation of agriculture]
Zavtra - v pole; rasskazy sekretarei komitetov VIKSM uchilishch
mekhanizatsii sel'skogo khoziaistva. [Moskva] Izd-vo TsK VIKS
"Molodaia gvardiia," 1956. 77 p. (MLRA 9:8)
(Communist Youth League)

Page 1

"The following information was obtained from a review of the files of the Central Intelligence Agency, Office of the Director of Intelligence, and the Office of the Chief of Staff, Department of Defense, and is being furnished to you for your information.

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1. The first part of the document is a list of references.

2. The second part of the document is a list of references.

3. The third part of the document is a list of references.

4. The fourth part of the document is a list of references.

PETROV, D.

Some problems of research on new light-metal alloys. In German. p. 101.
(Acta Technica, Vol. 16, No. 1/2, 1962, Budapest, Hungary)

See: Monthly List of East European Accessions (MELA) 1962, Vol. 1, Nos. 1, 2, and 3, p. 101.

1. The first

2. The second

3. The third

4. The fourth

5. The fifth

6. The sixth

7. The seventh

PETROV, D.

"New schemes for intermediate railroad stations with economic and operational advantages."

p. 18. (Transportno Delo, Vol. 10, No. 4, 1958, Sofia, Bulgaria)

Monthly Index of East European Accessions (EEAI) LC, Vol. 7, No. 12, Dec 58

PETROV, L.

New amateur radio station. . . .

SP9KAG radio station of Plovdiv City, 1966. Tr. from the Plovdiv. . . .

RADIO. Vol. 4, no. 1, 1966

Sofia, Bulgaria

3. R. E. East European Accessions List (EAL) Library of
Congress, Vol. 1, no. 1, January 1966

PERCY, P.

400 kilograms corn produced from a hectare, p. 16.
(Kooperativno Bemedelie, Vol. (1) no. 1, Mar. 1952. Sofia, Bulgaria)

SC Monthly List of fast growers in Appenzel (Vol. 10, Vol. 1, no. 1, October 1952, Incl.

PETROV, D.

Our experiment in casting basic and reeling bearings for motors
1 MA and 21.5K with BN composition. p. 22.
MASHINIZIRANO ZAMEDELIE. Vol. 7. no. 7, July 1957. Sofia,
Bulgaria

SOURCE: East European Accessions List, (EEAL) Library of
Congress, Vol. 6, No. 1, January 1957

PESHKIN, Il'ya Solomonovich; PETROV, D., redaktor; MOHOZOVA, G., tekhnicheskiy redaktor

[Youth pave the ways; Grigorii Pometin, his teachers and comrades]
Molodye prokladyvalut puti; Grigorii Pometun, ego uchitelia i
tovarishchi. [Moskva] Izd-vo Tek VLKSM "Molodaya gvardiia," 1956.
95 p. (MLRA 9:10)

(Technical education)

(Founding)

(Pometun, Grigorii Konstantinovich, 1929-)

PETROV, Dm.

Hardening or lowering your body's resistance. Zdorov'e 2 no.5:
32 My '56. (MLRA 9:8)
(CHILDREN--CARE AND HYGIENE)

GORODKO, V., nauchnyy sotrudnik (Kiyev); PETROV, D., nauchnyy sotrudnik (Kiyev)

Reduce the cost of the delivery of goods to stores. Sov. torg

35 no.12.20-22 D 'tl.

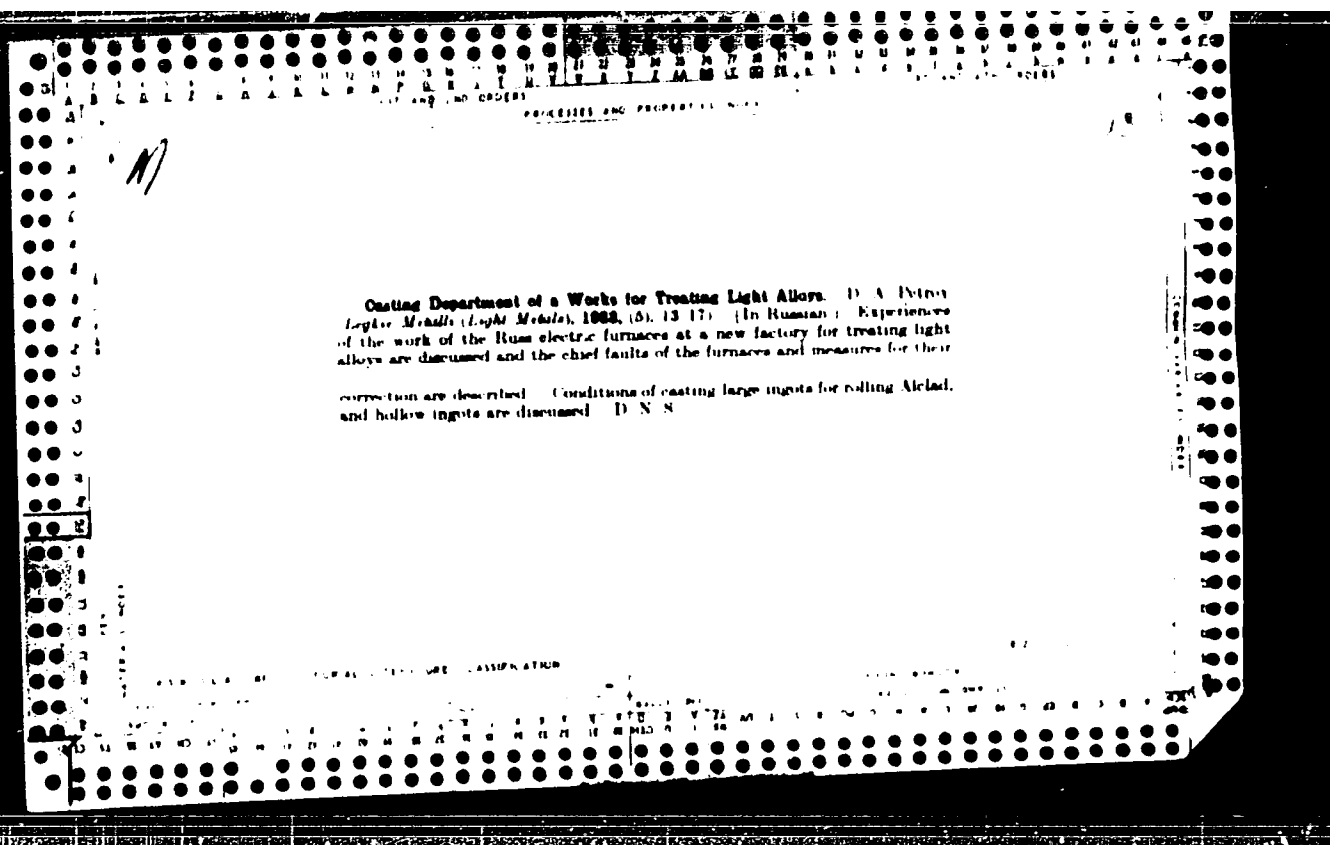
(MIRA 14 11)

(Delivery of goods)

PETROV, D., instruktor

The value of an experienced friend. Sel'mekh. no.3:28-29 '64.
(MIRA 15:3)

1. Rayonnyy komitet Kommunisticheskoy partii Sovetskogo Soyuza,
Ashevskiy rayon, Pskovskaya oblast'.
(Agricultural workers)



Mechanism of irreversible catalysis of unsaturated cyclic hydrocarbons with a double bond in the side chain
N. A. Lysina, I. A. Petrov and D. M. Trahtenberg
Zh. Fiz. Khim., USSR, 1980, 54(10), 1911-1915, 19 C, 4
30, 38110-1. One of the 2 previously proposed theories of the mechanism of irreversible catalysis of unsatd. cyclic hydrocarbons (cont. a double bond outside the ring) (cf. C.A.B. 20, 13114-5, 1976) was tested by catalyzing mixts

containing cyclohexane II; hydrocarbon and an olefin with an allyl group. The 2 components in the mixt were selected with as close as possible, and were present at a ratio calculated to produce by the dehydrogenation of the cyclohexane II, in an excess of the mixture, the complete hydrogenation of the olefin. The mixts were I, b pte hydrogenation of the olefin. Methylocyclohexane, b. 107°, d₄²⁰, with allylllyl, b. 57-60° methylcyclohexane (II), b with l-heptene, b. 94-95° dimethylcyclohexane (III), b 120°, with cumene, b. 118-119° and II with allylsilane, b. 126°. The mixts were twice collected over (III), b. 126°. The mixts were twice collected over (III), b. 126°. In a weak C₄H stream at a rate of 3-4 drops a min. Under these conditions of irreversible catalysis (C₄H) only 20-50% of the olefins were hydrogenated. However, catalyzing mixts of II with III and tetralin at 250-300° resulted in 75 and 85% of hydrogenated products. Hence the process of simultaneous dehydrogenation and hydrogenation is effected under the conditions

greatly different from those of irreversible catalysts. Thus, the mechanism of irreversible catalysts of cycloisomerizations with unsat. side chains alkylstyrenes, cyclohexadienes, etc., of low α cannot be conceived as a process of dehydrogenation at 200°C of the ring as accompanied by simultaneous hydrogenation of the unsat. side chains in the original and new formed hydrocarbons: $2C_6H_5CH=CH + 2H_2 = 2PhCH_2CH_2 + 2PhCH=CH$, $2C_6H_5CH=CH + 2H_2 = 2PhCH_2CH_2 + 2C_6H_5CH=CH$. Thus, another scheme of the mechanism previously accepted as more probable is substantiated. It consists in catalytic isomerization of the hydrocarbon with a shift of the ethylene bond into the ring with formation of styrene and cyclohexadiene hydrocarbons followed by the normal reaction of irreversible catalysts with the formation of 1 hydrocarbons. About 25 references. (U.S.P.A.)

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PROCESSES AND PROPERTIES

The Problem of Porosity in Aluminum-Silicon Alloys. D. A. Petrov and K. S. Novikova (*Tekhn. Vozdushnogo Flota (Tech. Air Fleet)*, 1958, 111). (In Russian.) The presence of sodium in Silumin increases the porosity of castings. Treatment with chlorine alone is useless, since the subsequent modification again induces porosity, and, if the treatment is applied after modification, the effects of this treatment disappear; chlorine also tends to remove magnesium. Treatment with nitrogen reduces the porosity of the modified alloy, but prolonged treatment nullifies the modification. Less porosity is obtained if the unmodified alloy is treated with chlorine, then modified with sodium, and finally treated with nitrogen, but the best results are obtained by modifying the alloy with a sodium chloride fluoride flux. Silumin cannot be treated with zinc chloride. N. A.

ASB 11.4 METALLURGICAL LITERATURE CLASSIFICATION

1000-110000

1000-110000

1000-110000

PROCESSING AND SUBMITTING UNIT		DATE	
111 AND 112 501(0)		111 AND 112 501(0)	
*Influence of Iron and of Small Amounts of Magnesium on the Aging of Aluminum-Copper Alloys. 1) A. Petrov (<i>Metallurgy (Metallurgiya)</i>, 1987, (5), 119-126). [In Russian.] Very small amounts of magnesium (0-0.5%) completely restore the age hardening capacity of aluminum alloys at room tem. peratures. The presence of traces of magnesium in certain samples of commercial aluminum explains the different results obtained by different investigators in the study of the aging of technical copper-aluminum alloys. When the iron content is high enough, the insoluble compound Al_3Fe is formed, which results in a decrease of aging capacity, even if the alloy contains magnesium. The presence of about 2% iron entirely prevents aging in 4% copper-aluminum alloy.—N. A.		2	
ALSO SEE METALLURGICAL LITERATURE CLASSIFICATION			
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101000 111 501 001		101000 111 501 001	

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Abs. Thesis

*On the Composition of the quaternary Phase in the system Al-Cu-Mg-Si.
D. A. Petrov (*Izvestiya Akademiya Nauk SSSR, Seriya Khimicheskaya*, 1937, No. 6, p. 805-812). (In English.) Using results obtained by Ixer and his collaborators (*Métallography*, 1932, 50, 223; 1933, 53, 120), the limits of atomic ratios in the quaternary phase Al-Cu-Mg-Si are established, as follows: Cu/Mg/Si = 1 : 1.33 and 0.74 ; Cu/Si = 1 : 10. The atomic ratio Cu/Mg/Si in the phase Al-Cu-Mg-Si is approximately 4 : 3 : 4. The quaternary phase has to exist together with Mg₂Sil in ordinary Duralumin containing more than 0.5% silicon. In alloys of the American Superaluminum C-17 Si and L4 Si the quaternary phase must exist alone without Mg₂Sil. Structurally free silicon, however, is present in these alloys. J. R. G. T.

C-17 Si and L4 Si

FROM SYNOBIS	SYNOBIS HAS DIV CODE	COLLECTION	DATE RECEIVED
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Catalytic isomerization of unsaturated hydrocarbons
with a double bond in the α,β -position R. Ya. Leksina
and D. A. Petrus, *J. Gen. Chem.* U.S.S.R. 7, 4, 10
1937, 4, 20, 414, and preceding articles.
Allylbenzene passed over PtO_2 in C_6H_6 at 100°C.
4.2 drops/min gave a catalyst containing 8% Pt and the
toluene γ -butenylbenzene from PhCH₂AlCl₃ and the
chloride, the 82.5% allylbenzene, PhCH₂AlCl₃ and
ethyl 44.31 gave γ -butenylbenzene PhCH₂AlCl₃
Me γ 1 MCl, diphenyl 1.20% allylbenzene

PROCESSING AND PROPERTY INDEX																																																																							
<i>M</i> Aluminum Alloys in the U.S.A. and Some Peculiarities of Their Application. D. A. Petrov (<i>Tekhnika Vozdush. Flota</i>, 1937, (9), 75-86). [In Russian.] A review.—N. A.																																																																							
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The composition of the fourth phase in the system Al-Cu-Mg-Si. D. A. Petrov, *Zh. fiz. Khim.* 41, 5, 1038, 1967. Al-Cu-Mg-Si alloys contain a four-component phase consisting of all elements with Al as the solvent in excess. The ratio Cu:Mg:Si is close to 1:1:1. Normal duralumin contains this four-component phase along with Mg₂Si when Si is more than 0.1%. An alloy of super duralumin should have this phase without Mg₂Si but along with structureless free Si. F. H. Kachumov.

ASO SLA METALLURGICAL LITERATURE CLASSIFICATION

Aging and properties of aluminum-magnesium alloys
D. A. Pethyco *Metals* 12 No. 6, 1967, 1-10
Aging at room temp. or at 150° does not change the mech
properties of quenched Al alloys contg 4-12% Mg
H. W. Pathmann

Ca

7

The influence of iron and magnesium on the aging of aluminum-copper alloys is A. P. Krasovskiy, *Met. Sci.*, 12, No. 1, 1968, pp. 1-4 (*Eng. Mater.* 62, Advances in Science and Technology, 1968, 1, 1-4). The authors studied the effect of Fe and Mg on the aging of Al-Cu alloys containing 0.1% Cu and 0.01% Fe. The results show that the aging of these alloys at room temp. However, the addition of Mg will nullify the effect of the Fe. Above 150°C, the effect of Fe-Cu₂S₄, which reduces the aging effect even in the presence of Mg. H. W. Rahnman.

ASD 92A METALLURGICAL LITERATURE CLASSIFICATION

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The age hardening of duralumin by Al₂Cu₃ is discussed in *Metallurg* 12, No. 10, pp. 105-106, 1967, *J. Inst. Metals* 57, Advance copy, No. 197, 18 pp. 1968. Hardness measurements after aging at elevated temps. showed that Si, either as MgSi₂ or as an Al-Mg-Si-Cu complex, enters into the age hardening of Cu-Mg-Si-Al alloys. At room temp. Si plays no part. The complex CuAl₂ and AlCu₂Mg₃ are the hardening constituents at room temp. for both high purity Cu-Mg-Al alloys and for commercial duralumin. The presence of both has been detected in micrographs in slowly cooled alloys. Tem. diagrams, micrographs and references are given. (See also 1968)

On the Importance of the Ternary Phase in the Ageing of Aluminium-Copper-Magnesium Alloys. D. A. Ilyov (*Metallurg (Metallurgy)*, 1958, (3), 88-91).—[In Russian.] Copper-magnesium aluminium alloys, made from aluminium containing silicon 0.03 and iron 0.03%, were annealed at 500° C. for 10 days and then cooled over a period of 7 days. Etching in a hot (70°) 10% solution of sodium hydroxide revealed the presence of the compound $Al_2Cu_3Mg_2$. Determinations of the hardness after quenching, after annealing, and after natural ageing indicated that the ageing is due to the presence of $Al_2Cu_3Mg_2$.—N. A.

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m a

Progress in the Development and Application of Aluminum Alloys. D. A. Petrov (Aeropro (Air Ind.), 1969, (11), 32-45, Chem. Zvesti, 1940, 111, (11), 2612. In Russian). A survey of the state of development in the U.S.A. and in Western Europe of pure and super pure aluminum, wrought and cast aluminum alloys, and work hardenable alloys.

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1st and 2nd covers

PROCESSING AND PROPERTIES INDEX

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The Heat-Resistance of Aluminium Alloys. D. A. Petrov (*Aviation*, 1940, (11 12), 12 25; *Khim. Referat Zaur*, 1941, 4, (6), 80; *C. Abstr.*, 1948, 27, 6231). --(In Russian). Data on the mechanical properties of Magnalium, Iburalumin, Y alloy, and Silumin at high temperatures indicate that the slowness of the decomposition of the solid solutions forming technical alloys determines their heat resistance. The slowness of the decomposition depends both on the properties of the solid solution itself (in an aluminium alloy with 5-6% magnesium) and on the properties of some complex ternary and quaternary intermetallic compounds formed slowly after the decomposition of the solid solution. The exceptionally high heat resistance of the Y alloys (aluminium containing copper 4, nickel 2, and magnesium 1.5%) and of Silumin are attributed to the formation of $Al_3Cu_2Mg_3$ and $Al_3Cu_2Mg_2Si_2$, respectively.

ASB SLA METALLURGICAL LITERATURE CLASSIFICATION

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E.T.V., D.A.

Moscow

Institute of General and Industrial Chemistry of the Academy of Sciences of the USSR

"The requisite and Adequate number of the production Manpower in the
in Primary and Secondary Systems"

Sov. Eng. Des., Vol. 12, No. 1, 1977.

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The necessary and sufficient number of cross-section slices for the determination of univariant curves in ternary and quaternary systems. D. Petrov, *Acta Physicochim.* R. S. S. U., 367-608 (1947).—Theoretical geom. In accord with Kurnakov's principle (C. A. 30, 58011) of geom. correlation, the no. of cuts necessary and sufficient to det. the univariant curves and invariant points is 3 for ternary, 6 for quaternary and 10 for 5-component systems.
P. H. Rathmann

ASO-SLA METALLURGICAL LITERATURE CLASSIFICATION

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Application of the co-mode method to the determination of univariant curves for ternary and quaternary eutectic mixtures with mixed crystals. D. A. Petrov (Ufa Phys. Acad. Sci. S.S.R. 1961, 16, 497-502). The method described in the previous abstract is extended to systems with mixed crystals.

Application of the method of conodes to drawing of univariant
curves in the systems of eutectic mixtures of three and four com-
ponents forming solid solutions. D. A. Petrov / *Dokl. Akad. Nauk*
1941 18, No. 803. Geometrical. 1. 1. B.

1979, A.

Inst. General and Intern. Secur., Anal. Div., (1979).

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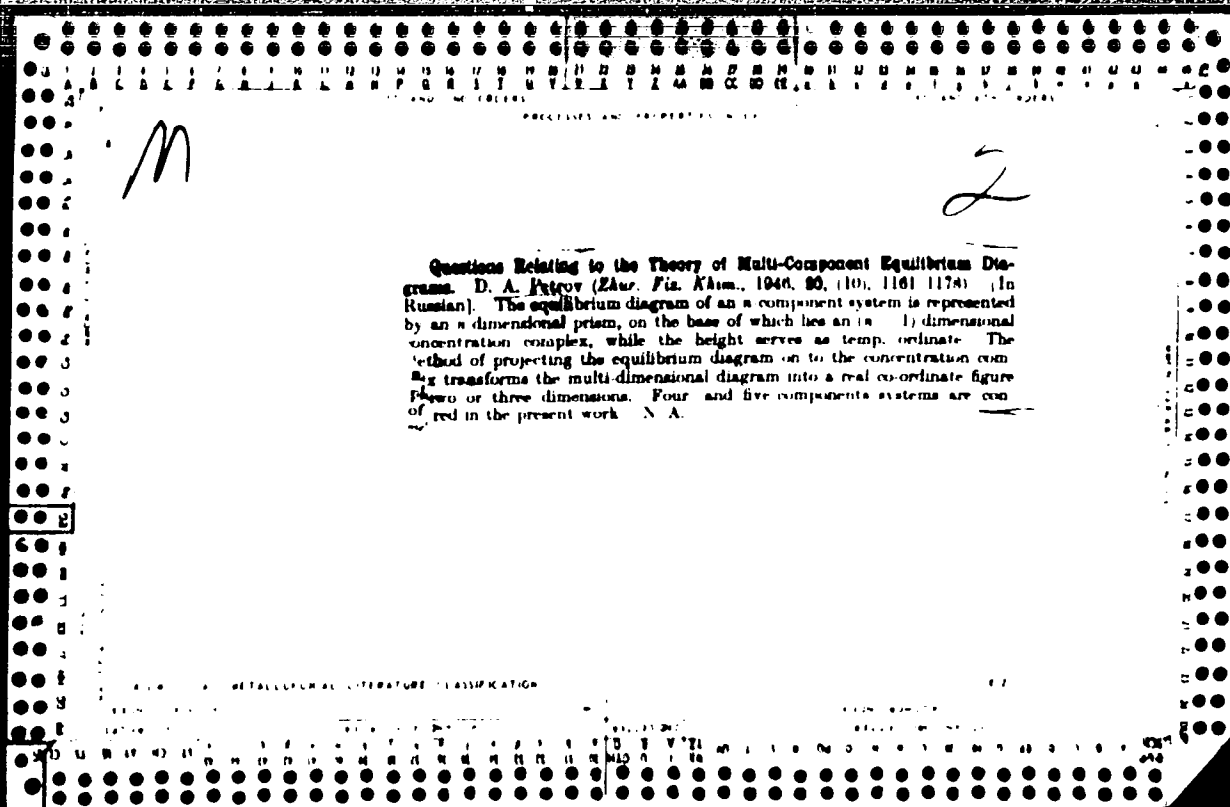
Jour. Fin. Econ., No. 1, 1979.

Solid solutions and the aging of alloys. D. A. Petrov (Acad. Sci. U.S.S.R., Moscow). *Izvest. Sektora Fiz. Khim. (Anal. Inst. Obshchei i Neorg. Khim., Akad. Nauk S.S.S.R. 10, No. 2, 211-31, 1946).* A decrease in the concentration of solid solns. upon lowering of temp. is a prerequisite to aging. Various changes occur in supersatd., i.e., hardened solid solns., depending whether aging takes place at low or high temp. If aging takes place at low temps., the changes in the supersatd. state consist of an aggregation of dissolved atoms into groups within the lattice of the solid soln. without disruption of the continuum of structure. By going to higher temps., the aggregation process is reversed, i.e., the groups of dissolved atoms commence to disperse, and a temp. is reached from which the solid soln. does not return to its original hardened state. The changes in a solid soln. occurring at low temp. followed by a return can be described by a metastable equilibrium curve. The curve for these processes has the same significance as the solubility curve for phase decomposition. At high aging temps., there occurs phase decomposition. This process is described by the solubility curve on the structural diagram. M. Hosh.

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2206/411, 408, 2207/2211, 2208

***Investigation of the Equilibrium Diagram of the System Aluminum-Copper-Magnesium.** (I. I. Urazov and D. A. Petrov (*Zhur. Fiz. Khim.*, 1944, 20, (4/5), 387-394).—[In Russian]. The aluminum corner of the system was studied by the thermal and microstructural analysis of alloys on five sections: 60, 70, and 80% aluminum, part of the 20% copper section, and the section from aluminum to the newly discovered ternary compound *S*. Three invariant reactions were established in the region investigated: (a) a ternary eutectic $\text{liq.} \rightleftharpoons \text{Al} + \text{CuAl}_2 + S$ at aluminum 63.1, magnesium 7.3, copper 29.7%, 540° C.; (b) a peritectic reaction $\text{liq.} + S \rightleftharpoons \text{Al} + T$ at aluminum 64.4, magnesium 25.6, copper 10%, 465° C.; (c) a ternary eutectic $\text{liq.} \rightleftharpoons \text{Al} + T + \text{Al}_3\text{Mg}_2$ at aluminum 65.8, magnesium 33.0, copper 1.5%, 445° C. There is also a peritectic reaction $\text{liq.} + U + S \rightleftharpoons T$ at aluminum 51.1, magnesium 34.0, copper 15%, 520° C. Approx. compositions of the compounds found in the region investigated are as follows: *U*: aluminum 13.7, copper 66.0, magnesium 20.3%; *S*: aluminum 34, copper 44.8, magnesium 17.2%. In conformity with these compositions the formulae $\text{Al}_3\text{Cu}_2\text{Mg}_3$ and Al_4CuMg_3 may be provisionally ascribed to the compounds *S* and *T* respectively. Vogel's formula Al_4CuMg_3 can be retained for the phase *T* (*Z. anorg. Chem.*, 1919, 107, 265; *J. Ind. Metals*, 1919, 22, 354). The phase *U* differs in composition from Baaston's phase with the formula $\text{Al}_2\text{Cu}_2\text{Mg}_3$ (*Publ. res. et tech. Ministère de l'Air*, No. 80, 1933, 1-9; *J. Ind. Metals*, 1933, 62, 673), but doubtless the two are the same. The composition of *S* differs from the phase designated $\text{Al}_3\text{Cu}_2\text{Mg}_3$ by Laves and Witte (*Metallwirtschaft*, 1936, 16, (1), 15-22; *Met. Abs.*, 1936, 2, 353) and also from $\text{Al}_2\text{Cu}_2\text{Mg}_3$ (Nishimura (*Nippon Kasei Gakkaishi*, 1937, 1, 8-18; *Met. Abs.*, 1938, 6, 249)). The max. solubility of magnesium in CuAl_2 probably does not exceed 1-1.5%. The phase *S* was mistaken by Vogel for the solid solution of Al_3Mg_2 in CuAl_2 .



***Investigation of the Range of the Solid Solutions of Copper and Magnesium in Aluminium.** D. A. Pytrov and G. S. Berg. *Zhur. Fiz. Khim.*, 1946, 20, (12), 1475-1487. [In Russian]. The extent of the solid solution of copper and magnesium in aluminium between 400° and 200° C. was determined by the microscopic analysis of specimens brought into equilibrium at various temp. and then quenched. In the presence of magnesium the solubility of copper progressively diminishes at all temp. In just the same way the solubility of magnesium decreases in the presence of copper, particularly in the concentration range 15.3-7%, magnesium. The solid solution field contracts continuously with decrease in temp. in accordance with the course of the saturation curves in the binary aluminium-copper and aluminium-magnesium systems. The lines of intersection of the solubility surfaces $x = N$ and $x = T$, and $x = T$ and $x = \text{Al}_2\text{Mg}$, are displaced towards the aluminium-magnesium side, and the two phase region $(x = N)$ extends over a narrow concentration interval. The contours of the T phase region at 400° C. were determined. The S phase occupies an extremely limited field, a single phase structure being observed only in the alloy containing 44% copper, 17% magnesium. This composition corresponds reasonably closely to the formula Al_4CuMg . $N = A$.

1. The first part of the document is a list of the names of the persons who were present at the meeting.

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Structure of alloys of aluminum and zinc and analogous structures in other systems. D. A. Petrov and T. A. Badaeva (Acad. Sci. U.S.S.R., Moscow). *J. Phys. Chem. (U.S.S.R.)* 21, 785-97 (1947) (in Russian). The work of Gayler and Sutherland (*C.A.* 22, 8339) left unexplained the origin of the "peritectic ring" around Al crystals and the reason for the anomalous nearly horizontal stretch of the solidus curve between 60 and 72 wt % of Zn. P and B show that the peritectic ring cannot be due to a peritectic transformation because this does not exist. This transformation was supposed to occur at more than 70% Zn, whereas the heat effects attributed to it can be detected also between 35% and 70% Zn; the heat effects are especially pronounced between 60% and 70% Zn. They are presumably due to formation of regular structures within the solid soln. Structure formation is probably detd. by measurements of elec. cond., δ and of the x-ray spacing d . The δ has a min. at 60% and a max. at 69% Zn both for thick cylinders and thin wires within the temp. range investigated (355-420°). The d (of wires) at 370° decreases gradually when the Zn concn. increases, but the decrease is particularly steep between 60 and 70% Zn, showing a more intimate mixing of Al and Zn atoms in the lattice. Contrary to many other high-order structures (Cu₃Au, etc.) this one is stable up to the melting point. The systems Fe-Si, Au-Mn, and others behave similarly. J. J. Bokerman

Translation: B-19119, 22 sep 54

ASD 51.2 METALLURGICAL LITERATURE CLASSIFICATION

Dislocation of Equilibrium During Crystallization of
Solid Solutions. (In Russian) D. A. Petrov, *Zhurnal
Fizicheskoi Khimii* (Journal of Physical Chemistry),
v. 21, Dec. 1947, p. 1449-1460.
Present results of a theoretical analysis of the
transformation of fluid mixtures into solid solu-
tions. Believes that the so-called "non-equilibrium
solidus" has no validity, hence should not be used
on constitution diagrams. Presentation includes
numerous diagrams.

PETROV, D. A.; KEFELI, L. M., and LEL'CHUK, S. L.

"Investigation of the Structure of the Copper Skeleton Catalyst," Dok. AN,
57, No. 6, 1947

M. A.

3.

Study of the Forms of Primary Crystallisation in Alloys. D. A. Petrov and A. A. Bukhanova (Izvest. Akad. Nauk S.S.S.R., 1949, (Khim.), (4), 396-409; C. Abs., 1950, 44, 895).--(In Russian). Experimental results agreed with Gibbs' condition, $\sum \sigma_i S_i = \text{minimum}$ for a const. vol., where σ_i is the surface energy of a crystal face and S_i is the surface area of the crystal face, and with Bravais's condition that the plane of closest packing grows fastest. The energy of atoms in a crystal was assumed greater the larger the unbalanced binding energy. The equilibrium crystal form in face-centered cubic crystals should be $\{111\}$. Although an evaporation method is possible, aluminium crystals were grown by cooling melts in the aluminium-tin system at 10-15°C./hr.; 99.7% aluminium and 99.5% tin were used. Crystals grown in 1-5% aluminium melts were found by metallographic examination of the solidified melt to be perfect octahedra; those grown in melts containing above 20% had oval cross-sections; intermediate compositions gave transition forms. Experiments on 99.5% lead-0.5% aluminium alloys gave perfect crystals at low temp. and oval forms at high temp. This temp. effect was found also in the formation of copper crystals from bismuth-copper and antimony crystals from lead-antimony alloys. The equilibrium form of silicon crystals was dodecahedral from tin-silicon melts. The reason for the formation of dendrites is the difference in binding energy of the atoms at various positions

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Constitution diagram of the aluminum-copper magnesium-silicon system D. A. Petrov and N. D. Nagai-shvaya Zhur (Zhukh. Ak. Khim. (J. Gen. Chem.) 10, 1904 2137, 1951 (Gen. Chem. S. S. R. 19, No. 11, 2469, 1951) (English translation). The Al-rich vertex of the quaternary diagram was studied down to 500° Al by means of cooling curves taken with a Kurnakov prism calorimeter and by means of microscopic examination. Previous data on the 3 Alcont. ternary systems and on the quaternary system are reviewed. The Al-Cu-Mg diagram down to 500° Al is reproduced. The α impurities in the materials were: Al 0.17 Si and 0.17 Fe, 0.001 Al and 0.10 Fe, 0.20 Al and 0.87 Fe, electrolytic Cu. Ternary master alloys were melted in graphite crucibles in a Kryptol furnace with an equivalent KCl-MgCl₂ flux, dried to remove water of crystal, poured into a cold metal mold, for immediate solidification, the flux was thickened by a small amt. of NH₄P to prevent entrapping. The same melting arrangement was used in taking cooling curves of 60 g. remelted quaternary alloys except that the flux 54.3 wt. % KCl and 45.7 LiCl was sometimes used. A 0.5 mm. Pt-Rh thermocouple was used to record the curve of cooling which took 40

[illegible]

PETROV, D. A.

Technology

Problems in the theory of aluminum alloys. Moskva, i s. nauchno-tekhn, izd-vo lit-ry po
chernoi i tsvetnoi metallurgii, 1961

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Unclassified.

Some particularities relative to compound formation in metallic alloys. D. A. Petrov (Acad. Sci. U.S.S.R., Inst. Gen. and Inorg. Chem., Moscow). *Zhur. Fiz. Khim.* 29, 1050 (1955). Ordered solid solns. may be formed from solid solns. (e.g., Cu₃Au, CuAu, Cu₃Pt) but also directly from the liquid phase. In the latter case, they may be sepd. from the pure components on the phase diagram by two-phase regions (e.g., AgMg, AuZn) or they may form a continuous series of solid solns. with their components in which case the liquidus presents an inflection point (e.g., AlZn, cf. C. I. 42, 2219) or a max. (e.g., AuMo, cf. V. A. Nizlov and A. A. Ruditskiy, C. I. 31, 1417). These examples illustrate the difference in the nature of the chemical bond in solid solns. and in intermetallic compds. This difference increases with decreasing temp. so that the two-phase region becomes broader or, with increasing dissimilarity in the chem. nature of the components, so that the two-phase region may reach the region of the liquid phase, e.g., PbNa becomes so broad that actually the compd. forms no solid soln. with the components (e.g., PbCa). Similar cases are encountered in β -solid solns. Thus in β brass ordered CuZn is formed from solid solns. In AgMg alloys β AgMg is formed from the liquid and the β -solid soln. is missing. In NiAu alloys an ordered phase NiAu similar to CuAu is formed from 2 solid solns. α and α' . Michel Boudart.

PETROV, D.A.; RAYKOVSKAYA, L.A.

Intercrystalline liquation by the method of microhardness. Izvest.
Akad. Nauk S.S.S.R., Otdel Khim.Nauk '52, 225-9. (MLBA 5:5)
(CA 47 no.15:7416 '53)

PETROV, D.A.; AGEYEV, N.V., redaktor.

[Ternary systems] Troinye sistemy. [Otvestvennyi redaktor N.V. Ageev] Moskva.
Izd-vo Akademii nauk SSSR, 1953. 313 p. (MLBA 6:10)

(Systems (Chemistry))

PETROV, D.A., doktor tekhnicheskikh nauk, professor.

[Aging of metals] Starenie metallov. Moskva, Izd-vo "Znanie", 1953.
22 p. (MLSA 6:11)

(Metals)

Petrov, D.A.

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✓ Aging of metals. D. A. Petrov. *Nesko i Znan* 1953, No. 8, 26-8; *Referat Zhurn.* 1954, Abstr. No. 4944. — The alloying of a metal with subsequent thermal treatment (quenching and natural or synthetic aging) increases the tensile strength by a factor of 2.5-3 (Al-Cu alloy contg. 4% Al) and sometimes by more than a factor of 10. Cu has a tensile strength of 35 kg./sq. mm., and that of aged Be bronze is 400-500 kg./sq. mm. The process of structural transitions in an alloy Al + 4% Cu upon aging which leads to an increase in hardness was described. The presence of Mg and Mn in duralumin complicates the process of dispersion solidification but it does not change the essence of the process. "Supersaging," i.e., softening of an alloy by heating to very high temps. (or for a long period of time), is related to the transition from intermediate, submicroscopic structures to the final structure with a weakening of internal tensions and a decrease in hardness. J. Roytar Leach

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PETROV D. A.

Petrov, D. A.: *Teoriya khimicheskoy struktury i organicheskoy khimii* (Theory of Chemical Structure in Organic Chemistry). Moscow: Izdatel. Akad. Nauk S.S.S.R. Akademkniga, 1974. 123 pp. R. 5, K. 10.

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